

Declaration and Power of Attorney For Patent Application

特許出願宣言書及び委任状

Japanese Language Declaration

日本語宣言書



22511

PATENT TRADEMARK OFFICE

下記の氏名の発明者として、私は以下の通り宣言します。
私の住所、私書箱、国籍は下記の私の氏名の後に記載された通りです。

下記の名称の発明に関して請求範囲に記載され、特許出願している発明内容について、私が最初かつ唯一の発明者（下記の氏名が一つの場合）もしくは最初かつ共同発明者であると（下記の名称が複数の場合）信じています。

上記発明の明細書（下記の欄で×印が付いていない場合は、本書に添付）は、

☐ 年 月 日に提出され、米国出願番号または特許協定条約国際出願番号を _____ とし、
(該当する場合) _____ 日に訂正されました。

私は、特許請求範囲を含む上記訂正後の明細書を検討し、同内容を理解していることをここに表明します。

私は、第37編連邦規則法典第1章56条に定義される通り、特許資格の有無について重大な意味を持つ情報を開示する義務があることを認めます。

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

HIGHLY PERMEABLE COMPOSITE REVERSE OSMOSIS
MEMBRANE AND METHOD OF PRODUCING THE SAME

the specification of which is attached hereto unless the following box is checked:

☐ was filed on _____
as United States Application Number or PCT
International Application Number
_____ and was amended on
_____ (if applicable).

I hereby state I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56.

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私は、第 3 5 編米国法典 1 1 9 章に基づき下記の外国でなされた特許もしくは発明者証の出願についての外国優先権をここに主張するとともに、優先権を主張した出願の前に提出された特許または発明者証の外国出願を以下に示しています。

I hereby claim foreign priority under Title 35, United States Code, § 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed.

過去の外国における出願

優先権の主張

10-363069

Japan

21 December 1998

(Number)

(Country)

(Day/Month/Year Filed)

(番号)

(国名)

(出願年月日)

☒

☐

Yes

No

はい

いいえ

(Number)

(Country)

(Day/Month/Year Filed)

(番号)

(国名)

(出願年月日)

☐

☐

Yes

No

はい

いいえ

(Number)

(Country)

(Day/Month/Year Filed)

(番号)

(国名)

(出願年月日)

☐

☐

Yes

No

はい

いいえ

私は、第 3 5 編米国法典 1 2 0 章に基づいて下記の米国特許出願に授与された利益をここに主張致します。また、本出願の各請求範囲の内容が過去に第 3 5 編米国法典 1 1 2 章第 1 条で規定された方法で米国特許出願により開示されていない限り、過去の米国出願書提出日以降、本出願書の日本国内または特許協力条約国際提出日までの期間中に入手され、しかも第 3 7 編連邦規則法典 1 章 5 6 条で定義された特許資格の有無に重大な意味のある情報については、開示義務があることを私は認めます。

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application

(Application Serial No.)

(Filing Date)

(出願番号)

(出願日)

(Status: Patented, Pending, Abandoned)

(現況: 特許許可済み、係属中、放棄済み)

(Application Serial No.)

(Filing Date)

(出願番号)

(出願日)

(Status: Patented, Pending, Abandoned)

(現況: 特許許可済み、係属中、放棄済み)

私は本書中の私自身の知識に基づく表明が真実であり、かつ他から聞いた情報及び私が信じることを基とする表明が全て真実であると信じていること、さらに故意になされた虚偽の表明及びその他は第 1 8 編米国法典第 1 0 0 1 章に基づき罰金、または拘禁、もしくはその両方により罰されること、またそのような故意の虚偽による表明があると出願または許可された特許の有効性が損なわれることを承知の上で上記表明をなしていることをここに宣言致します。

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief and believed to be true; and further that these statements were made with the knowledge that willful false statements and like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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日本語宣言書

委任状：下記の発明者として、私は本出願の手続きを遂行し、同出願に関連する特許商標庁との一切の取引を取り扱うため、以下の弁護士及び（または）代理人をここに指名致します。（弁護士、代理人の氏名及び登録番号を明記のこと）

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith (*list name and registration number*)

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Full name of sole or first inventor
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発明者の署名

日付

Inventor's signature

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#4 Declaration
2/4/02
H. Butcher

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Masahiko HIROSE
Serial No.:
Filed :
Title : Highly Permeable Composite Reverse Osmosis Membrane and Method of
Producing the Same

Art Unit :
Examiner :

Assistant Commissioner for Patents
Washington, DC 20231

DECLARATION OF Osami TOZAWA under 37 CFR § 1.132

Osami TOZAWA hereby declares that:

1. I received a Master's Degree in Chemical Engineering from the Graduate School of Engineering at Hiroshima University in 1976.
2. I received a Doctorate Degree in Food Chemical Engineering from Kyushu University in 1983.
3. I have worked in the field of Food Chemical Engineering for 7.5 years, in the field of Agricultural Chemistry for 0 years, and in the field of Gas Separation Membrane for 12 years. Since 1984, I have been involved in the development of gas separation membranes and the development of membranes for water purifiers.
4. I am familiar with the above referenced patent application, and have reviewed the Examiner's rejections.

TOZAWA Osami

5. I am a person of at least ordinary skill in the art of Reverse Osmosis Membranes.

6. I am not a listed inventor on the present application.

After carefully reviewing the Specification of the referenced application, I believe that the formulae presented in the application do not mean polymers with those specific sequences. Instead, they represent polymers composed of monomers with indicated ratios.

It is well known in the field of polymer chemistry that polymers are prepared by mixing starting monomers with a desired ratio before initiating the polymerization process. Once the reaction starts, one cannot control the specific sequence of the final polymer products. In fact, the final polymer products are inevitably mixtures of various sequences. Thus, as a general rule, control of specific monomer sequences is extremely difficult. In the interfacial polymerization described by the Specification, control of a 518 monomer sequence would be almost impossible. After reviewing the Specification, it is clear that the disclosed chemical formula listing 500 units of one species, 10 units of a second, and 8 units of a third, represent a ratio of starting monomer units. In this type of polymerization, it is common to mix three reagents into a single reaction vessel, and allow the polymerization to occur within the single reaction vessel. Therefore, one skilled in the art would know that the formulae in the application could not mean polymers with the specific sequences shown. Instead, one skilled in the art would know that these formulae simply indicate the relative ratios of the starting monomers. In fact, one of ordinary skill in the art would realize that the resultant polymer structure will have a random arrangement of monomer units.

Further, I have conducted the experiment under the conditions described by the Specification, including adding the three monomers in the described ratio, and analyzed the resulting polymer. The resulting polymer was then used to create a reverse osmosis membrane as described in the Specification. The membrane was then tested and was found to have similar properties as the membrane described in the Specification. The results of the polymer analysis are attached as Appendix A. Specifically, Appendix A includes ^{13}C -NMR data on the polymer. By looking at the chemical shifts of certain carbons, the resultant polymer structure is clear.

As a result of this, it is my belief that one of ordinary skill in the art could create a reverse osmosis membrane in accordance with the disclosed embodiments, simply by following the Specification of the present application, and using a ratio of monomers rather than a specific monomer sequence.

I further declare that all statements made herein of my own knowledge are true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Respectfully submitted,

Osami Tozawa.

Date signed: October 23th, 2001

APPENDIX A

1. PURPOSE

The following measurements were performed to specify a structure of a denatured polyvinyl alcohol described in the Examples of the present invention.

2. ANALYTICAL METHOD

2-1. SAMPLES AND PROCESS

Prepared samples were dissolved in dense dimethylsulfoxide (70°C) for a ^{13}C -NMR(BCM) measurement and also for a ^{13}C -NMR(DEPT) measurement. Methanol was added by about 0.5% to a part of the samples before the ^{13}C -NMR(BCM) measurement, since the samples might contain methanol as one of the original components.

2-2. ANALYZER

FT-NMR apparatus: LA400 (JEOL)

2-3. MEASUREMENT CONDITIONS

Concentration: about 10%

BCM: proton complete decoupling measurement

DEPT: 135° (methine and methyl face upward while methylene faces downward; quaternary carbon disappears)

Conditions for the measuring apparatus are described in the charts.

3. RESULTS AND CONSIDERATION

- 1) Chart No. 1 shows results of ^{13}C -NMR measurement on the samples.

In the measurement, PVA as a main component was recognized together with polyvinyl acetate (VAC) and 2-substitutional benzene. The VAC was regarded as an unsaponified part of the PVA, and the 2-substitutional benzene was considered as a structure having an amino group at the 0-position on the basis of the chemical shift value. Uncertain peaks are formed at 73.5 ppm, 68.3 ppm, 48.3 ppm and 38.3 ppm, and these peaks are considered as being provided by the structure combining the 2-substitutional benzene and a main chain, though it was substantially impossible to analyze the structure.

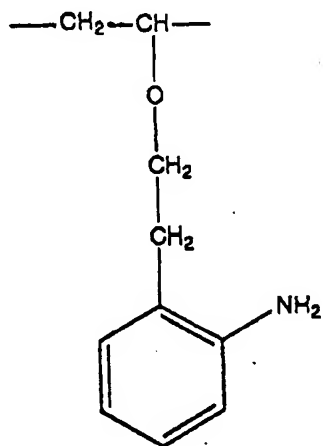
- 2) Chart No. 2 shows results of ^{13}C -NMR (DEPT) measurement on the samples.

The results show that the respective 73.5 ppm and 38.3 ppm in the uncertain peaks of Chart No. 1 denote methylene, 68.3 ppm denotes methine and 48.3 ppm denotes either methine or methyl.

3) Chart No. 3 shows results of ^{13}C -NMR measurement on the methanol-containing samples.

In the measurement, the 48.3 ppm peaks recognized in the above 1) and 2) were consistent with the methanol peak. It was determined accordingly that the 48.3 ppm peak denotes methanol that was included in the original samples in an order of several thousands of $\mu\text{g/g}$.

4) The structure of the part that the main chain and 2-substitutional benzene were combined was estimated as shown below on the basis of the above 1)-3). However, it still remains in the realm of speculation as the chemical shift value cannot be determined.



[Charts]

Chart No. 1-1: ^{13}C -NMR (BCM) measurement result for samples

Chart No. 1-2: Enlarged spectrum of Chart No. 1-1

Chart No. 1-3: Enlarged spectrum of Chart No. 1-1

Chart No. 2-1: ^{13}C -NMR (DEPT) measurement result for samples

Chart No. 2-2: Enlarged spectrum of Chart No. 2-1

Chart No. 3-1: ^{13}C -NMR (BCM) measurement result for samples including methanol

Chart No. 3-2: Enlarged spectrum of Chart No. 3-1

FIG. 1 is a graph showing the results of the measurement of the ^{13}C -NMR spectrum of the sample.